section also opened the subsection of anthropology. In his address, after giving a brief and general sketch of the modern doctrine of the antiquity and origin of man, Mr. Alfred R. Wallace devoted the remainder of his remarks to the far more momentous and exciting problem of the development of man from some lower animal form. He observed that in the last sixteen years scientific men have passed from one extreme of belief to the other, — from a profession of total ignorance as to the mode of origin of all living beings to a claim of almost complete knowledge of the whole progress of the universe from the first speck of protoplasm up to the highest development of the human intellect. Mr. Wallace, believing that the facts which oppose this theory receive hardly their due attention, that opposition is the best incentive to progress, and that it is not well even for the best theories to have it all their own way, directed the attention of his hearers to some of the facts, and to the conclusions fairly deducible from them.

Papers were read by Lieutenant Cameron, Mr. Pengelly, M. Tiddemann, and Professor Barrett.

The French Association for the Advancement of Science met August 16th at Clermont. M. Gabriel de Mortillet was chosen president of the Section of Anthropology. The subject of his opening address was the Origin of Superstitions. Papers were read by MM. Broca, Tubino, Ollier de Marchand, Vacher, Roujon, and Hovelacque.

The American Archæological Convention met in Philadelphia, in the Centennial Judges' Hall, on the 6th of September. A permanent organization was formed, called the American Anthropological Association, with Dr. C. C. Jones as president and Rev. H. D. Peet as secretary. — O. T. Mason.

GEOLOGY AND PALÆONTOLOGY.

Cretaceous Vertebrates of the Upper Missouri. — Professor Cope has recently returned from an exploration of the Fort Union beds of the Upper Missouri, especially those discovered by Dr. Hayden in 1855 at the mouth of the Judith River. Attention was given to the relation of this formation to the underlying marine cretaceous beds, and to the respective faunæ of the two as compared with that of the early eocene period. The fauna was found to be terrestrial and lacustrine, including great numbers of *Unionidæ*, *Lepidosteus*, *Ceratodus*, and a form probably of rays; of crocodiles, fresh-water turtles, Sauropterygian and Dinosaurian reptiles. The *Dinosauria* constitute the most abundant and characteristic form of life, eighteen species having been found, of which eight were of the carnivorous (*Goniopodous*) and ten of the herbivorous (Orthopodous) type. The predominant genus of the former is *Lœlaps*, of the latter, *Dysganus*, of both of which several species were found.

The facies of this fauna is thus plainly mesozoic and cretaceous, adding

weight to the arguments already adduced to this effect. But the change from the fauna of the underlying cretaceous numbers four and five is very striking, the genera and often higher groups being quite different. The types of the marine beds were found to be *Pythonomorpha*, *Elasmosaurus*, *Plesiosaurus*, *Enchodus*, chimærids and sharks, with marine *Cephalopoda*, etc. Nevertheless the physical transition between the marine and lacustrine formations appears to be complete, as indicated by Professor Hayden.

Powell's Geology of the Uinta Mountains.[1] The field work reported on by this important volume was done between the years 1868 and 1875, among the Uinta Mountains and adjacent regions, covering portions of Wyoming south of the Pacific Railroad and of Utah. This region is of great general geological interest, and its geology has been discussed by Major Powell in an able and original way. Particular attention has been paid to facts relating to mountain-building, the amount of denudation and displacement of strata in these mountains being fully discussed and graphically represented. The Bird's-Eye View of a Part of the Uinta Uplift, in the atlas, well illustrates the author's manner of representing the orography of an extensive plateau area. The formations described have an aggregate thickness of fifty thousand feet, and embrace groups of palæozoic, mesozoic, and cenozoic age. The palæontology has been elaborated by Dr. C. A. White. The geological maps and sections are of a high degree of interest and of much practical importance.

GEOGRAPHY AND EXPLORATION.

Return of the British Arctic Expedition. — The following note is condensed from the newspaper reports. The British Arctic Expedition under Captain Nares returned to England, October 27th. The Alert and Discovery left Fort Foulke on July 29, 1875, and entered the ice off Cape Sable. After a severe and continuous struggle they reached the north side of Lady Franklin Bay, where the Discovery was left in winter quarters. The Alert pushed on and reached the limit of navigation on the shore of the Polar Sea. The ice varied in thickness, being in some places one hundred and fifty feet thick. President Land does not exist.

The Alert wintered in latitude 82° 27′. At this point the sun was invisible one hundred and forty-two days, and a temperature the lowest ever recorded was experienced, being fifty-nine degrees below zero for a fortnight, and falling once to one hundred and four degrees below the freezing point. A detachment with sledges was dispatched northward. It was absent seventy days, and reached latitude 83° 20′. Another party rounded Cape Columbia, the northwest point of America, and traced two hundred and twenty miles westward from Greenland, and also explored far to the eastward.

[1] Report on the Geology of the Eastern Portion of the Uinta Mountains and a Region of Country adjacent thereto. With Atlas. By J. W. Powell. Washington. 1876. 4to, pp. 218.